

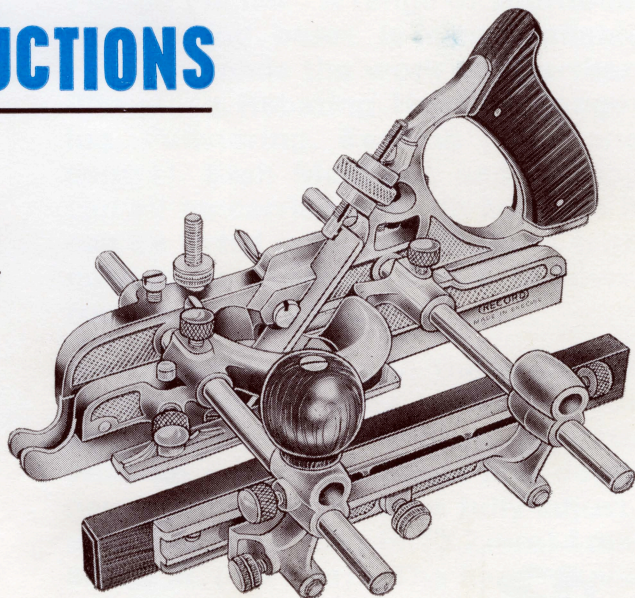
# **OPERATING INSTRUCTIONS**

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## **Record**

### **No. 405**

**MULTI-PLANE**





**Record Ridgway Tools Ltd.**

Ref. 405/5/77

**Parkway Works**

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**Sheffield S9 3BL**

**England**

Printed in England

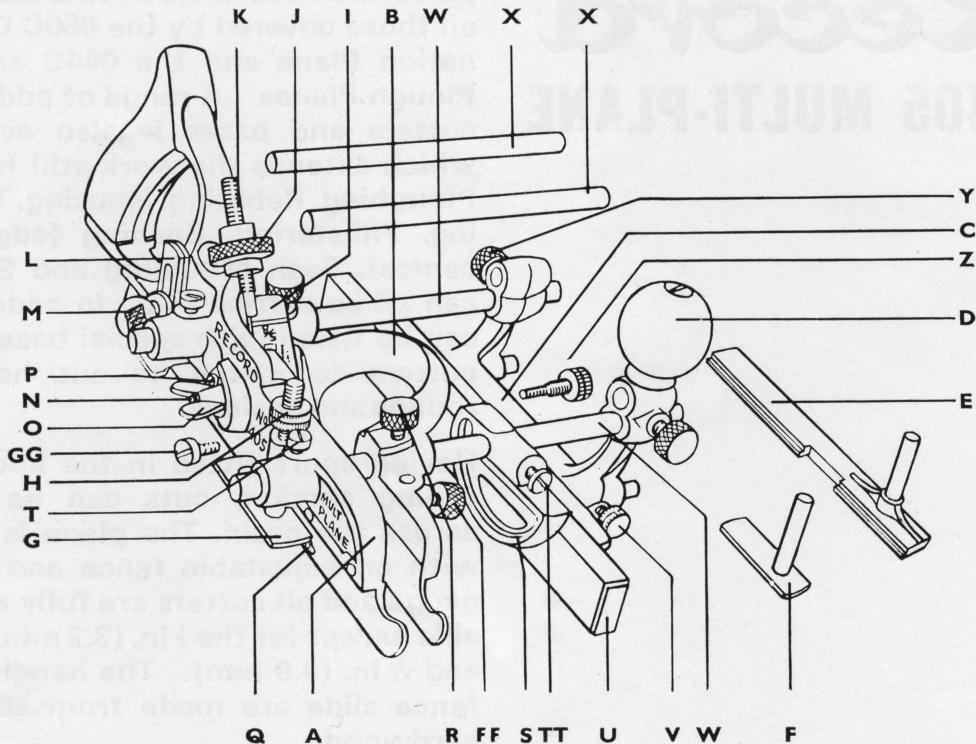
# **Record**

## **No. 405 MULTI-PLANE**

The Record Multiplane No. 405 will perform a wide range of cuts including all those covered by the 050C Combination Plane and the 044C and 043 Plough Planes. A range of additional cutters and bases is also available which extends the work still further. Ploughing, Rebating, Housing, Tonguing, Fillistering, Beading (edge and centre), Sash Moulding and Slitting can all be carried out. In addition it can be fitted with special bases with cutters to match, to cut hollows, rounds and nosings.

Having spurs fitted in the body and sliding section, cuts can be made across the grain. The plane is fitted with an adjustable fence and depth gauge and all cutters are fully adjustable except for the  $\frac{1}{8}$  in. (3.2 mm) 4 mm and  $\frac{3}{16}$  in. (4.8 mm). The handles and fence slide are made from selected hardwood.

# 405 MULTI-PLANE





|           |   |
|-----------|---|
| <b>A</b>  | Body                                      |
| <b>B</b>  | Sliding Section                           |
| <b>C</b>  | Fence                                     |
| <b>D</b>  | Fence Knob Bolt and Nut                   |
| <b>E</b>  | Beading Stop                              |
| <b>F</b>  | Sliding Section Depth Gauge               |
| <b>FF</b> | Sliding Section Depth Gauge Knurled Screw |
| <b>G</b>  | Adjustable Depth Gauge                    |
| <b>GG</b> | Depth Gauge Locking Screw                 |
| <b>H</b>  | Depth Gauge Adjusting Nut                 |
| <b>I</b>  | Cutter                                    |
| <b>J</b>  | Cutter Adjusting Nut                      |
| <b>K</b>  | Cutter Adjusting Screw                    |
| <b>L</b>  | Slitting Cutter Stop                      |
| <b>M</b>  | Slitting Cutter Stop Thumbscrew           |
| <b>N</b>  | Cutter Bolt                               |
| <b>O</b>  | Cutter Bolt Wing Nut                      |
| <b>P</b>  | Cutter Bolt Clip and Screw                |
| <b>Q</b>  | Spurs and Screws                          |
| <b>R</b>  | Sliding Section Knurled Screws            |
| <b>S</b>  | Cam Steady                                |
| <b>T</b>  | Fence Arm Setscrews                       |
| <b>TT</b> | Cam Steady Screw                          |
| <b>U</b>  | Hardwood Slide for Fence                  |
| <b>V</b>  | Fence Slide Bar Knurled Screw             |
| <b>W</b>  | Fence Arms, Long                          |
| <b>X</b>  | Fence Arms, Short                         |
| <b>Y</b>  | Fence Knurled Screws                      |
| <b>Z</b>  | Fence Slide Adjusting Screw               |

## Assembling the plane

For packing purposes the plane is fitted with two Short Fence Arms X which although suitable for some applications are normally substituted by the Long Fence Arms W. Replace each arm, positioning it half way through the Body A and retighten its Set Screw T. Re-positioning will only be necessary when an increased fence capacity is required. Fit Sliding Section B onto the arms and secure in position by Knurled Screws R. To replace cutter I (which must be sharpened before use see Pages 4 and 5 for details), slacken Knurled Screws R and Wing Nut O, withdraw Sliding Section B sufficient to permit the replacement cutters to be inserted into the groove from underneath and engage the cutter slot with the pin on the Adjusting Screw K. Lightly tighten Wing Nut O and adjust Sliding Section B so that its angular face supports the cutter near its outer edge, tighten Knurled Screw R. The Fence C, which has an additional pair of holes which permit greater depth of engagement when required, also slides onto the arms and is secured in place by Knurled Screws Y. It has a hardwood slide and an extra fine Adjusting Screw Z, the adjustment being locked by the Knurled Screw V. The body carries the handle, the Cutter Adjusting Nut J, the Depth Gauge G, the Slitting Cutter Stop L and a Spur Q for across the grain work. The sliding section also carries a Spur Q. When centre beading at a distance from the edge, a Cam Steady S is provided. The depth of cut is controlled by Depth Gauge G.

## Care in Use

The Body is of high quality grey iron and although robust, care should be taken never to drop it. Make sure that Fence Arm Set Screws T and Fence Knurled Screws Y are tight before use, otherwise the plane may be subjected to undue strain and inaccuracies in working may result. The plane will require a minimum of maintenance other than a little light machine oil on the screw threads.

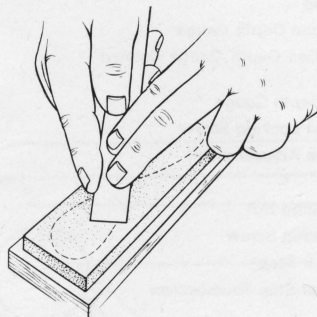
When making adjustments, keep the plane over the bench to avoid losing small screws and parts in the shavings.

A little paraffin wax applied to the wood face of the Fence will make for easier working. Thin shavings give more accurate results than thick ones and a better finish. The Cutters must be kept in first class condition and keenly sharp at all times.

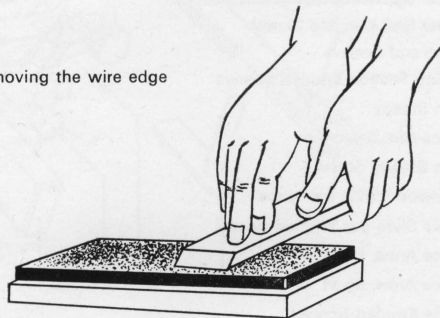
## Sharpening

The Cutters have been accurately ground to the correct 35° bevel before leaving the factory. However, before the plane can be used the **Cutters must be sharpened** and it is recommended that this is done on the ground bevel, i.e. no sharpening bevel as with bench planes. The user will find them much easier to maintain if this rule is followed. Use a good quality flat oilstone lightly smeared with thin machine oil. Sharpen the plough Cutters by placing the ground bevel firmly on the surface of the oilstone moving it forward and back in a figure of 8 movement in order to distribute the oil and wear the stone evenly. A rounded edge must be avoided with the Cutter angle kept constant. However, by using an Edge Tool Honer the job is simplified since the Honer maintains the Cutter at the correct angle.

Cutter being sharpened



Removing the wire edge



When a wire edge appears on the reverse side of the Cutter and extends along the full width of the cutting edge, the Cutter should be **laid flat** on the oilstone, **bevel side up**, when a few strokes forward and back will remove it. Care must be taken to ensure that the Cutter lies **flat** on the stone since any lift will round the back and render it useless. The Cutter will now be sharp and ready for use.

Keep the cutter flat when removing the wire edge



## Grinding

Regrounding of the 35° Cutter bevel should not be attempted by the amateur unless he has some knowledge of the use of a grinding wheel. The Cutter must be kept cool and the grinding wheel, if of natural grit, should always be water cooled. The latest type horizontal grinder using wheels of artificial grit, requires a special coolant oil recommended by the makers. Fast moving artificial stones, used dry, will almost certainly "draw" the temper of the steel and render it useless. The Cutter should be moved from side to side across the stone to grind the full width of the bevel and to keep the surface of the wheel true. Check regularly that the grinding angle is being maintained and that the cutting edge is at right angles to the sides of the Cutter.

## Setting up the plane

To set the cutter, slacken off the Cutter Bolt Wing Nut O and operate the Cutter Adjusting Nut J until the cutter edge shows slightly forward of the body and sliding section angular faces. Fully tighten Nut O, check that the sliding section is correctly supporting the cutter, then tighten down on the Sliding Section Knurled Screws R. To set the fence, slacken the Fence Slide Bar Knurled Screws V and use a rule to measure the required distance between the cutter and fence. To control depth of groove or other cut, set the Depth Gauge G by slackening the Depth Gauge Locking Screw GG, adjust the Depth Gauge Nut H and place the depth gauge at the required distance from the edge of the cutter. The Sliding Section Depth Gauge F may also be fixed in position being held in place by Knurled Screw FF.

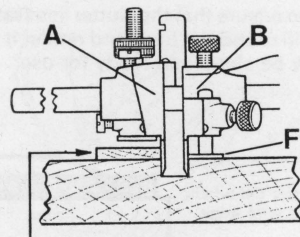
The Beading and Sash Cutters call for two separate sharpening operations. Firstly, sharpen the quirks as with the Plough Cutter. Secondly, the curve of the Cutter must be sharpened using an oilstone slip with an edge curve to suit the sweep of the bead. Do not make a second bevel and sharpen to maintain the shape and obviate grinding. Remove the wire edge as before. When an oilstone slip is not available, flour grade emery cloth wrapped around a dowel and touched with a little oil is a good substitute or alternatively a hardwood rod dipped in emery powder and oil. This also applies to the Hollows, Rounds, Nosing, Fluting, Reeding and Ovolo cutters.

The Spurs should be sharpened on the inside only. Use a fine saw file holding the spur with flat nosed pliers resting on the edge of the bench. Final finishing can be carried out on the oilstone.

## Housing

To cut a housing or dado (i.e., a groove across the grain) it is necessary to sever the top fibres of the timber before the cutter comes into use. For this purpose Spurs Q are provided in both Body A and Sliding Section B. Release the small screw, lift and rotate the spur so that it projects below the skate, both on the sliding section and the body. Set fence and depth gauge and start the cut by drawing back the plane from the edge furthest away from you, then push the plane forward and operate normally.

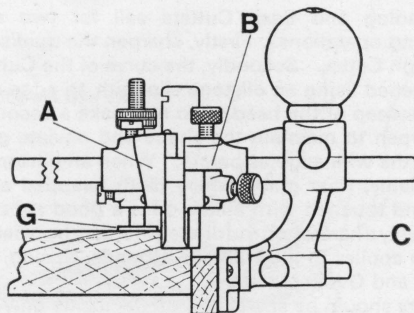
A fine setting is desirable when cutting across the grain. When a housing is required at a distance from the edge beyond the limits of the fence arm, it is necessary to remove the fence and use a strip of wood as a guide, either tacked on or held with G. Cramps. Once cutting is under way the guide can be removed.



BATTEN AS GUIDE

## Rebates and Fillisters

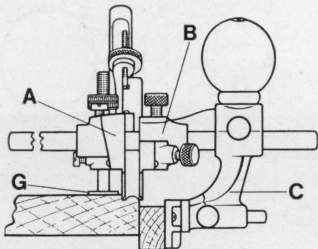
Use a cutter slightly wider than the required rebate and slide the fence under the cutter to set the required width of cut. Set Depth Gauge G to required rebate depth and place the Sliding Section B under the cutter so as to give a bearing on the outer edge of the rebate.





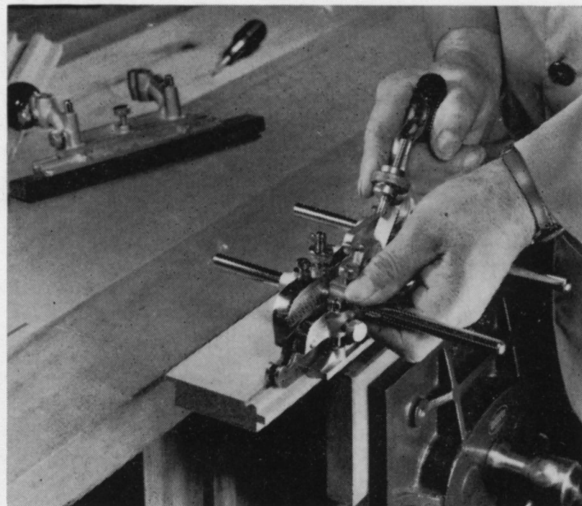
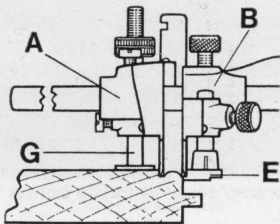
## Edge Beading

Select the beading cutter required and set the plane as for rebating but with the fence just masking the outer quirk of the cutter. Set the Depth Gauge G so that the top of the bead is slightly lower than the face of the board, this permits the board to be cleaned off without damaging the bead.



## Beading Tongued Boards

Instead of using Fence C, use beading stop E, attaching it to the Sliding Section B. This in effect provides a fence that can work above the tongue. Depth Gauge G controls the depth of the cut. Spurs are not required.



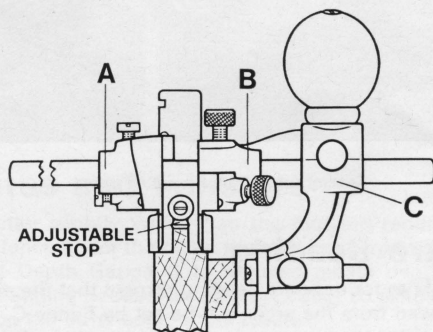
Cutting a bead on a tongued board

## Centre Beading

Assemble as for ordinary beading, except that the distance of the bead from the edge will be set by Fence C. When near the edge the cam steady may not be required; but at a wider distance from the edge, the cam steady should be used on the forward arm to give extra bearing. With fence fully extended centre beads can be cut up to 5 in. (127 mm) from the edge.

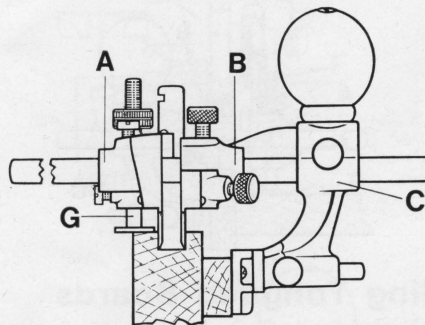
## Tonguing and Grooving

For tonguing, use the tonguing cutter. As the height of the tongue is controlled by the adjustable stop, it is not necessary to use the Depth Gauge G. Two cutters are provided so that boards from  $\frac{3}{8}$  in. (9.5 mm) to 1 in. (26 mm) can be tongued in the centre. Set Fence C to give the position of the tongue. For grooving use the corresponding plough cutter. Set the depth of the groove with Depth Gauge G and the distance from the centre with Fence C. The spurs are unnecessary in these two operations.



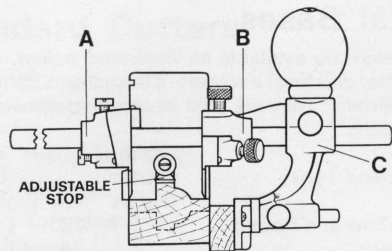
## Ploughing

Setting up for ploughing is exactly the same as for grooving. Fence C gives the distance from the edge of the board; Depth Gauge G gives the depth of groove. Grooves  $\frac{1}{2}$  in. (21 mm) deep can be cut without adjusting the cutter



## Sash Work

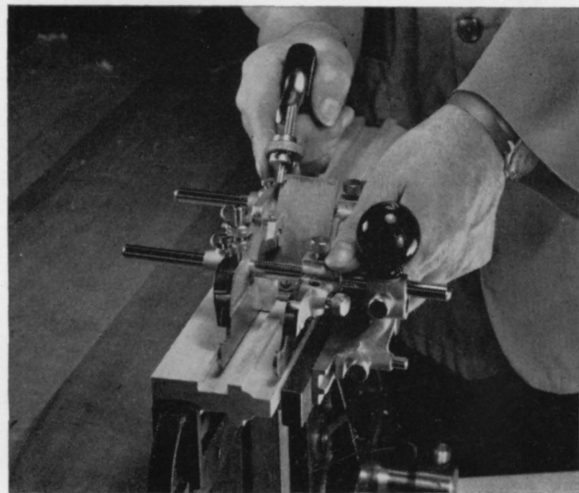
Setting up for sash work is similar to setting up for tonguing except that the sash cutter is used. The Depth stop attached to the sash cutter is adjustable. Fence C is used. It will be found easier to cut the mouldings from the edge of a board, cutting first one side and then the other, and finally severing the moulding with a saw, this obviates the need for a holding cradle. Alternatively the work can be held in a sash cramp secured in the bench vice as seen in the photograph.



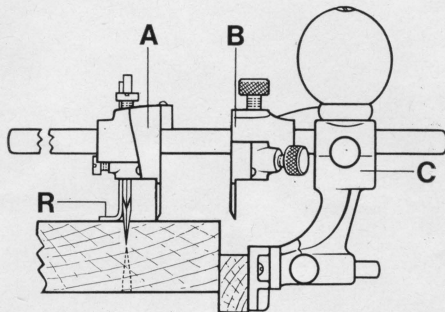
## Slitting

The slitting cutter is used for cutting off narrow lengths from thin boards. It is set in the Body A just in front of the handle.

Set the Slitting Cutter Stop L which is secured with the same thumb screw as the slitting cutter. The width is controlled by Fence C. Thin boards can be slit from one side but it is better to slit thicker ones from both sides.

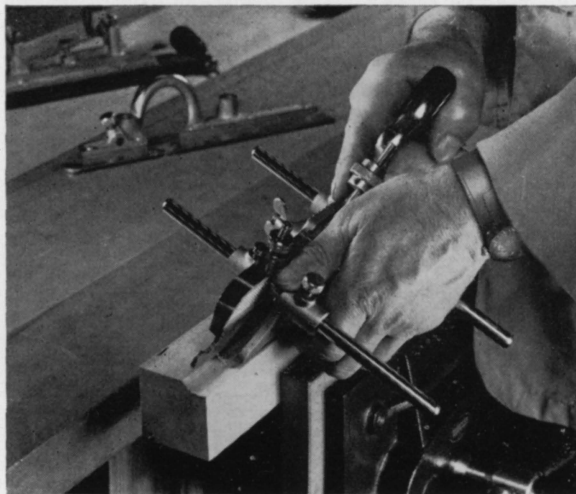


Cutting a sash bar



## Hollows and Rounds

Special bases are provided as optional extras for making hollows and rounds. They are attached in place of the sliding section and each has its own cutter. The bases and cutters can be used in combination with grooves and rebates to cut more complicated mouldings.



Cutting a hollow

## Nosings

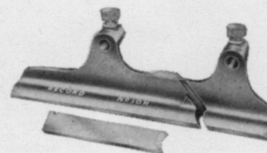
A special base and cutter is provided, again as an optional extra for rounding the edges of stair treads and other similar work. It is attached instead of the sliding section.

## Special Bases

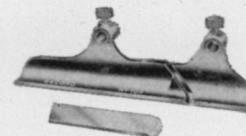
Special bases are available as illustrated below. A hollow and its cutter will form a round—a round and its cutter will form a hollow. They are sold in sets, 1 Hollow, 1 Round and 2 Cutters.

| No. and Type              | Width of Cutter |    | Works Circles  |    |
|---------------------------|-----------------|----|----------------|----|
|                           | Inches          | mm | Inches         | mm |
| No. 6 Hollow and Round .. | $\frac{1}{4}$   | 13 | $\frac{3}{4}$  | 19 |
| " 8 " " ..                | $\frac{3}{8}$   | 16 | 1              | 26 |
| " 10 " " ..               | $\frac{1}{2}$   | 19 | $1\frac{1}{4}$ | 32 |
| " 12 " " ..               | 1               | 26 | $1\frac{1}{2}$ | 38 |
| " 5 Nosing Tool ..        | $1\frac{1}{8}$  | 43 | $1\frac{1}{4}$ | 32 |

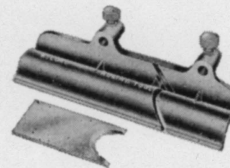
Extra CUTTERS for Hollows or Rounds and Nosing Tool are available.



No. 10 Hollow



No. 10 Round



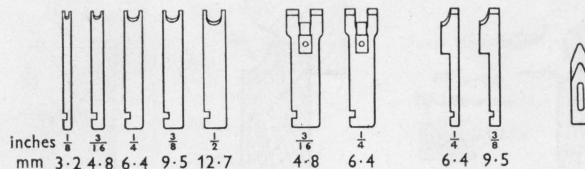
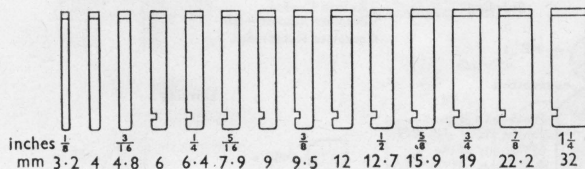
No. 5 Nosing Tool



## Standard Cutters

STANDARD set of 24 Record Tungsten Steel Cutters supplied with each plane.

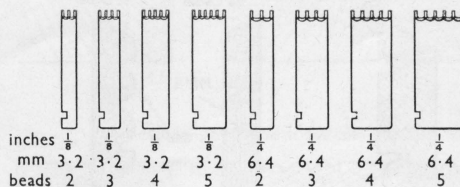
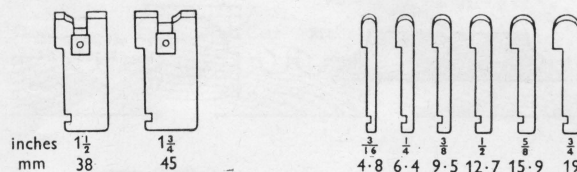
- 13 Plough and Dado.
- 5 Beading.
- 2 Tonguing.
- 1 Fillister.
- 1 Slitting.
- 2 Ovolo.



## Additional Cutters

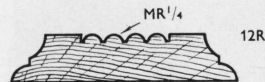
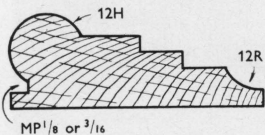
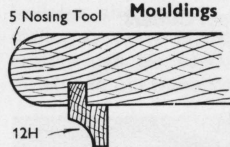
ADDITIONAL Record Tungsten Steel Cutters

- 2 Sash.
- 6 Fluting.
- 8 Reeding.



# SOME EXAMPLES OF THE TYPE OF WORK POSSIBLE WITH THE RECORD 405 MULTI-PLANE.

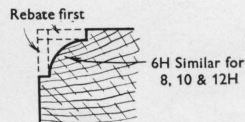
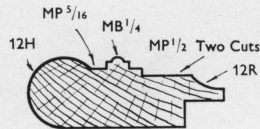
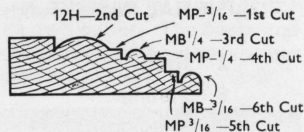
## Mouldings



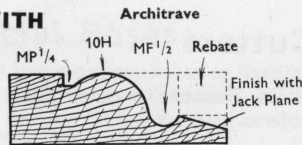
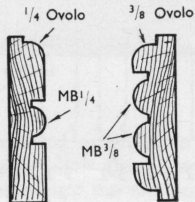
## Chair Rails



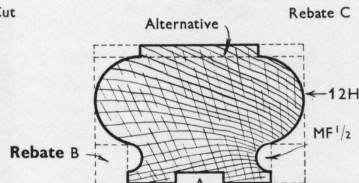
All measurements in inches.



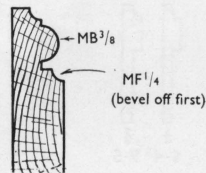
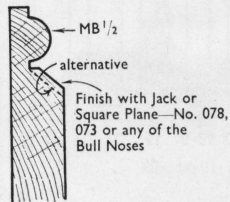
## Coffin Skirting



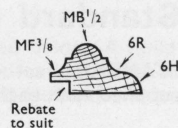
## Hand Rail



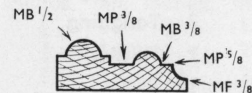
## Skirting



## Bolection



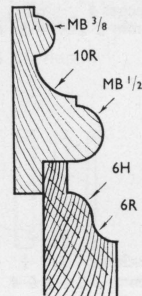
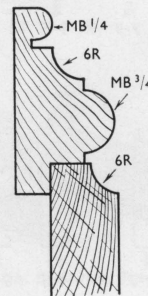
## Panel Moulding



## Ovolos

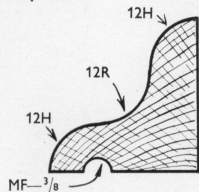


## Skirting

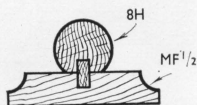


# All sizes in inches

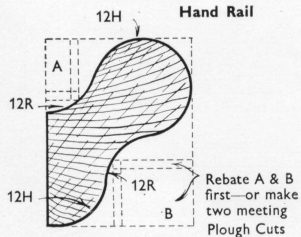
## Drip Board



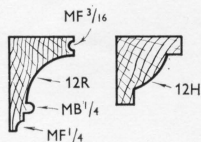
## Coping



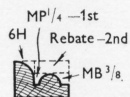
## Hand Rail



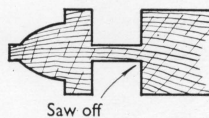
## Cornice



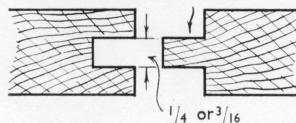
## Panel Moulding



## Sash Cutter



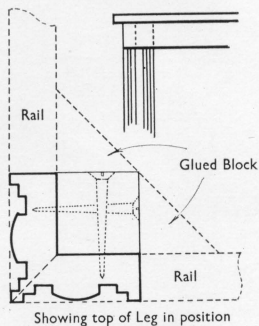
## Tonguing Cutter



## Slitting Thin Boards



## Table Leg



MF 3/16, 1/4, 3/8, 1/2, 5/8 or 3/4

## One Cut



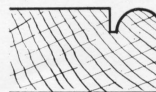
## Two Cuts



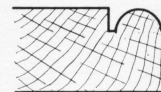
## Three Cuts



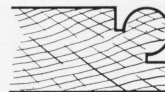
MB 3/8 or 1/2



MB 3/8 or 1/2



MB 3/8 or 1/4



Reeds 1/8, or 1/4 with one cut—MR 2-1/8 to MR 5-1/2



**Record**